REMARKS

Claims 3 - 14 and 16 – 32 were presented for examination.

Claims 3 - 14 and 16 – 32 were rejected.

Claims 3, 8 – 9, 16 – 17, 20 – 22, 24, and 26 have been amended in order to further clarify the nature of Applicants' invention.

Applicant's request cancellation of claims 27 – 32 without prejudice.

Applicants request addition of claims 33 – 46.

Claims 3 – 14, 16 - 26, and 33 – 46 as amended are currently pending in the application and are presented for consideration. The independent claims are claims 3, 16, 34, and 41.

The above changes to the claims are believed not to introduce new matter, and their entry is respectfully requested.

Based on the above Amendment and the following Remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections, and withdraw them.

Rejections under 35 USC 103

Claims 3 – 4, 8 – 9, 16 – 20, and 26 were rejected under 35 USC 103 as being unpatentable over US patent 6,307,627 (Vurens), hereinafter referred to as *Vurens*. As amended, independent claims 3 and 16 now recite:

3. A method for measuring a first phase difference between first and second reflected polarized light signal components, the method comprising the steps of:

transmitting a first incident light signal toward a first object, wherein said first object is a magnetic disk;

separating from a reflected light signal that has reflected off said first object a first mixed reflected polarized light signal component having a first phase and a second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein said first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein said second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

detecting a first intensity of said first mixed reflected polarized light signal component;

detecting a second intensity of said second mixed reflected polarized light signal component;

determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities.

16. (Amended) A system for measuring a first phase difference between first and second reflected polarized light signal components, comprising:

a light source for transmitting a first incident light signal toward a first object wherein said first object is a magnetic disk;

a polarization splitter for separating from a first reflected light signal, that has reflected off of said first object, the first mixed reflected polarized light signal component having a first phase, and the second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein the first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein the second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

a first detector for detecting a first intensity of the first mixed reflected polarized light signal component;

a second detector for detecting a second intensity of the second mixed reflected polarized light signal component; and

a phase determinator for determining a difference in phase between the first and second mixed reflected polarized light signal components based upon said first and second intensities.

As amended, all independent claims recite separating a reflected light signal into first and second mixed reflected polarized light signal components that have different phases and that comprise both P-polarized and S-polarized light relative to the plane of incidence of the reflected light signal. All independent claims additionally recite determining a difference in phase

between the first and second mixed reflected polarized light signal components based upon the first and second intensities.

Vurens does not disclose separating a reflected light signal into first and second reflected polarized light signal components that 1) have different phases and 2) are each mixed light signal components comprised of both P-polarized and S-polarized light relative to the plane of incidence of the reflected light signal. Instead, *Vurens* discloses splitting a reflected light signal into components with identical phases, or splitting a reflected light signal into a first component comprised only of P-polarized light and a second component comprised only of S-polarized light. Thus, *Vurens* fails to teach or suggest each of the claim limitations recited in independent claims 3 and 16, as required for an obviousness rejection. *In re Royka*, 490 F.2d 981 (CCPA 1974); MPEP § 2143.03. As a result, Applicants respectfully request that the Examiner withdraw the rejection of independent claims 3 and 16. Claims 4, 8 – 9, 17 – 20, and 26 are dependent from either claim 3 or claim 16. Accordingly, Applicants also request that the Examiner reconsider and withdraw the rejection of claims 4, 8 – 9, 17 – 20, and 26 for at least this reason.

Claims 10 and 21 were rejected under 35 USC 103 as being unpatentable over *Vurens* in view of US patent 5,610,897 (Yamamoto), hereinafter referred to as *Yamamoto*. Based upon the following remarks, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

As noted above, Applicants have overcome the Examiner's rejection of claims 3 and 16 as unpatentable over *Vurens*. The Examiner does not contend and, in fact, *Yamamoto* does not

provide any additional teaching that overcomes the deficiencies in *Vurens* identified above. That is, neither *Yamamoto* nor *Vurens*, either alone or in combination, discloses, suggests, or implies both of the elements

separating from a reflected light signal that has reflected off said first object a first mixed reflected polarized light signal component having a first phase and a second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein said first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein said second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities.

as recited in claim 3. Similarly, neither *Yamamoto* nor *Vurens*, either alone or in combination, discloses, suggests, or implies both of the elements

a polarization splitter for separating from a first reflected light signal, that has reflected off of said first object, the first mixed reflected polarized light signal component having a first phase, and the second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein the first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein the second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

a phase determinator for determining a difference in phase between the first and second mixed reflected polarized light signal components based upon said first and second intensities.

as recited in claim 16. Thus, claims 3 and 16 are patentable over *Vurens* in view of *Yamamoto*, as these references do not teach or suggest all elements of the claims. *In re Royka*, 490 F.2d 981; MPEP § 2143.03. Claims 10 and 21 are dependent from either claim 3 or claim 16, and thus are also patentable for at least this reason.

Claims 13 – 14 and 24 – 25 were rejected under 35 USC 103 as being unpatentable over *Vurens* in view of US patent 5,985,680 (Singhal), hereinafter referred to as *Singhal*. Based upon the following remarks, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

As noted above, Applicants have overcome the Examiner's rejection of claims 3 and 16 as unpatentable over *Vurens*. The Examiner does not contend and, in fact, *Singhal* does not provide any additional teaching that overcomes the deficiencies in *Vurens* identified above. That is, neither *Singhal* nor *Vurens*, either alone or in combination, discloses, suggests, or implies both of the elements

separating from a reflected light signal that has reflected off said first object a first mixed reflected polarized light signal component having a first phase and a second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein said first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein said second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities;

as recited in claim 3. Similarly, neither *Singhal* nor *Vurens*, either alone or in combination, discloses, suggests, or implies both of the elements

a polarization splitter for separating from a first reflected light signal, that has reflected off of said first object, the first mixed reflected polarized light signal component having a first phase, and the second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein the first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein the second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

a phase determinator for determining a difference in phase between the first and second mixed reflected polarized light signal components based upon said first and second intensities;

as recited in claim 16. Thus, claims 3 and 16 are patentable over *Vurens* in view of *Singhal*, as these references do not teach or suggest all elements of the claims. *In re Royka*, 490 F.2d 981; MPEP § 2143.03. Claims 13 – 14 and 24 - 25 are dependent from either claim 3 or claim 16, and thus are also patentable for at least this reason.

Claims 11 – 12 and 22 – 23 were rejected under 35 USC 103 as being unpatentable over *Vurens* in view of *Yamamoto* in view of *Singhal*. Based upon the following remarks, Applicants respectfully request that the Examiner reconsider the rejection and withdraw it.

As noted above, Applicants have overcome the Examiner's rejection of claims 3 and 16 as unpatentable over *Vurens*. The Examiner does not contend and, in fact, *Yamamoto* and *Singhal* do not provide any additional teaching that overcomes the deficiencies in *Vurens* identified above. That is, neither *Singhal* nor *Vurens* nor *Yamomoto*, either alone or in combination, discloses, suggests, or implies both of the elements

separating from a reflected light signal that has reflected off said first object a first mixed reflected polarized light signal component having a first phase and a second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein said first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein said second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities;

as recited in claim 3. Similarly, neither *Singhal* nor *Vurens* nor *Yamamoto*, either alone or in combination, discloses, suggests, or implies both of the elements

a polarization splitter for separating from a first reflected light signal, that has reflected off of said first object, the first mixed reflected polarized light signal component having a first phase, and the second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein the first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein the second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

a phase determinator for determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities;

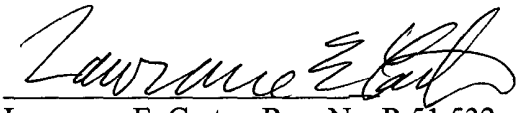
as recited in claim 16. Thus, claims 3 and 16 are patentable over *Vurens* in view of *Yamamoto* in view of *Singhal*, as these references do not teach or suggest all elements of the claims. *In re Royka*, 490 F.2d 981; MPEP § 2143.03. Claims 11 – 12 and 22 - 23 are dependent from either claim 3 or claim 16, and thus are also patentable for at least this reason.

Conclusion

Applicants believe that all of the stated grounds of objection and rejection set forth by the Examiner in the Office Action have been properly accommodated or addressed. Applicants, therefore, respectfully request that the Examiner reconsider all presently outstanding objections and rejections and withdraw them. The Examiner is invited to telephone the undersigned representative if it is felt that an interview might be useful for any reason.

Respectfully submitted,
S. Meeks and R. Kudinar

Date: 10/29/2002

By: 

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Version with Markings to Show Changes Made

In the Claims:

3. (Amended) A method for measuring a first phase difference between first and second reflected polarized light signal components, the method comprising the steps of:

transmitting a first incident light signal toward [the] a first object, wherein said first object is [one of] a magnetic disk [and a silicon wafer];

separating [the] from a reflected light signal that has reflected off said first object a first mixed reflected polarized light signal component having a first phase and [the] a second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein said first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein said second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal [from said first light signal reflected off said first object];

detecting a first intensity of [the] said first mixed reflected polarized light signal component; [and]

detecting a second intensity of [the] said second mixed reflected polarized light signal component; and

determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities.

8. (Amended) The method of claim 3, further comprising the step of:

polarizing said first incident light signal to generate a first incident polarized light signal component and a second incident polarized light signal component of said first incident light signal, said first and second incident polarized light signal components being orthogonally polarized.

9. (Amended) The method of claim 3, wherein [the] said first and second mixed reflected polarized light signal components are orthogonally polarized.

16. (Amended) A system for measuring a first phase difference between first and second mixed reflected polarized light signal components, comprising:

a light source for transmitting a first incident light signal toward a first object wherein said first object is [one of] a magnetic disk [and a silicon wafer];

a polarization splitter for separating [the first reflected polarized light signal component and the second reflected polarized light signal component] from a first reflected [first] light signal, that [is] has reflected off of said first object, the first mixed reflected polarized light signal component having a first phase, and the second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein the first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein the second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

a first detector for detecting a first intensity of the first mixed reflected polarized light signal component;

a second detector for detecting a second intensity of the second mixed reflected polarized light signal component; and

a phase determinator for determining a difference in phase between the first and second mixed reflected polarized light signal components based upon said first and second intensities.

17. (Amended) The system of claim 16, wherein said phase determinator comprises:

a texture eliminator for determining a difference between said first and second intensities to reduce the [effects] effect on at least one measured value of a texture on said first object.

20. (Amended) The system of claim 16, further comprising:

a magnetic identifier for determining a magnetic characteristic of said first object based upon said difference in phase.

21. (Amended) The system of claim 16, further comprising:

a Kerr effect determinator for measuring the magneto-optic Kerr effect based upon said difference in phase.

22. (Amended) The system of claim 21, further comprising:

a defect determinator for determining a defect exists at a first location on the first object based upon said first and second intensities; and

a mechanical scribe for marking said first location to identify said defect.

24. (Amended) The system of claim 16, further comprising:

a defect determinator for determining a defect exists at a first location on the first object based upon said first and second intensities; and

a mechanical scribe for marking said first location to identify said defect.

26. (Amended) The system of claim 16, further comprising:

a polarizer for polarizing said first incident light signal to generate a first incident polarized light signal component and a second incident polarized light signal component of said first incident light signal, said first and second incident polarized light signal components being orthogonally polarized.

33. (New) The method of claim 3 wherein the step of determining a difference includes:

determining a difference between said first and second intensities to reduce the effect on at least one measured value of a texture on said first object.

34. (New) A method for measuring a first phase difference between first and second reflected polarized light signal components, the method comprising the steps of:

transmitting a first incident light signal toward a first object, wherein said first object is a silicon wafer;

separating from a reflected light signal that has reflected off said first object a first mixed reflected polarized light signal component having a first phase and a second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein said first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein said second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

detecting a first intensity of said first mixed reflected polarized light signal component;

detecting a second intensity of said second mixed reflected polarized light signal component; and

determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities.

35. (New) The method of claim 34 further comprising the step of:

determining a texture on said first object based upon said difference in phase.

36. (New) The method of claim 34, further comprising the step of:

determining a thickness of a lubricant on said first object based upon said difference in phase.

37. (New) The method of claim 34, further comprising the step of:

polarizing said first incident light signal to generate a first incident polarized light signal component and a second incident polarized light signal component of said first incident light signal, said first and second incident polarized light signal components being orthogonally polarized.

38. (New) The method of claim 34, wherein said first and second mixed reflected polarized light signal components are orthogonally polarized.

39. (New) The method of claim 34, further comprising the steps of:

determining a defect exists at a first location on the first object based upon said first and second intensities; and

marking said first location to identify said defect.

40. (New) The method of claim 39, wherein said marking step further comprises the steps of:

moving a mechanical scribe to a position substantially adjacent to said first location;

positioning said mechanical scribe at substantially said first location; and

marking said first location with said mechanical scribe.

41. (New) A system for measuring a first phase difference between first and second mixed reflected polarized light signal components, comprising:

a light source for transmitting a first incident light signal toward a first object wherein said first object is a silicon wafer;

a polarization splitter for separating from a first reflected light signal, that has reflected off of said first object, the first mixed reflected polarized light signal component having a first phase, and the second mixed reflected polarized light signal component having a second phase that is different from said first phase, wherein the first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to a plane of incidence of said reflected light signal, and wherein the second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;

a first detector for detecting a first intensity of the first mixed reflected polarized light signal component;

a second detector for detecting a second intensity of the second mixed reflected polarized light signal component; and

a phase determinator for determining a difference in phase between the first and second mixed reflected polarized light signal components based upon said first and second intensities.

42. (New) The system of claim 41, wherein said phase determinator comprises:

a texture eliminator for determining a difference between said first and second intensities to reduce the effect on at least one measured value of a texture on said first object.

43. (New) The system of claim 41, further comprising:

a thickness determinator for determining a thickness of a lubricant on said first object based upon said difference in phase.

44. (New) The system of claim 41, further comprising:

a defect determinator for determining a defect exists at a first location on the first object based upon said first and second intensities; and

a mechanical scribe for marking said first location to identify said defect.

45. (New) The system of claim 44, further comprising:

a scribe positioner for moving a mechanical scribe to a position substantially adjacent to said first location before marking said first location.

46. (New) The system of claim 41, further comprising:

a polarizer for polarizing said first incident light signal to generate a first incident polarized light signal component and a second incident polarized light signal component of said first incident light signal, said first and second incident polarized light signal components being orthogonally polarized.